

REMARKS/ARGUMENTS

Favorable consideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1, 3, 9-12 and 14-18 are presently pending in this application. Claims 1, 3, 9 and 12 having been amended and Claims 14-18 added by way of the present amendment.

In the outstanding Office Action, Claims 1, 3 and 9-12 were rejected under 35 U.S.C. § 103(a) as being unpatentable over JP 10-317084 (hereinafter “JP ‘084”) in view of either JP 62-292244 (hereinafter “JP ‘244”) or JP 5-311271 (hereinafter “JP ‘271”).

First, Applicants wish to thank Examiner Kerns for the October 7, 2008 personal interview at which time the outstanding issues in this case were discussed. During the interview, Applicants presented amendments and arguments substantially as indicated in this response. Examiner Kerns indicated that the amendments and arguments presented appeared to overcome the outstanding rejection, but further search and consideration is needed.

Turning now to the merits, in order to expedite issuance of a patent in this case, Applicants have amended independent Claims 1 and 12 to clarify the patentable features of the present invention over the cited references. Specifically, Claim 1, as amended, recites a continuous casting method for continuously manufacturing an aluminum or aluminum alloy metal cast member. The method includes driving a casting wheel, with a groove formed on an external peripheral surface thereof and an endless belt put on the casting wheel so as to close the groove, in a direction of casting. Also recited is causing the casting wheel and the endless belt to be differentiated in temperature therebetween at a portion of the endless belt where molten metal starts to come into contact with the endless belt. This causing includes heating the endless belt at a position before where the molten metal starts to come in contact with the endless belt such that said portion of the endless belt where molten metal starts to come into contact with the endless belt is heated to a temperature of ((melting point or

liquidus-line temperature of the aluminum or aluminum alloy metal) x 0.35) or above. The heating is performed by a heating device that is not configured to heat the molten metal, and the causing also includes cooling the casting wheel.

Thus, Claim 1 has been amended to clarify that the heating of the endless belt occurs at a position before where the molten metal starts to come into contact with the endless belt such that the portion of the endless belt where the molten metal starts to come in contact with the endless belt is heated to the recited temperature range. Further, the heating of the endless belt is performed by a heating device that is not configured to heat the molten metal. Claim 12 includes similar features in apparatus claim format. As discussed in Applicants' specification, conventional continuous casting methods provided cooling to both a casting wheel and an endless belt, thereby causing defects in a center of the casting member which cannot be eliminated by reworking such as rolling extruding or drawing.¹ The present inventors recognized that differentiating the temperature between the endless belt and casting wheel as recited in Claims 1 and 12 can bring casting defects closer to a surface of the cast member where they can be reworked.²

The Office Action admits that the JP '084 primary reference does not explicitly disclose heating of the endless belt. During the October 7th personal interview, however, Examiner Kerns explained his position that JP'084 *inherently teaches* heating the endless belt. Specifically, in JP'084 the endless belt takes a path that is in close proximity to the molten metal which, in the examiner's view, could allow heat radiated from the molten metal to heat the endless belt. However, Claims 1 and 12 have been amended to clarify that the heating is performed by **a heating device that is not configured to heat the molten metal**. As discussed in the interview, it cannot be said that the JP'084 heat source (i.e. the molten metal)

¹ Applicants' published specification at paragraphs 4-5.

² Applicants' published specification at paragraphs 33.

“is not configured to heat the molten metal.” For this reason alone, Claims 1 and 12 patentably define over JP’084.

In addition, however, amended Claims 1 and 12 further distinguish over JP’084. In the October 7th personal interview, Examiner Kerns explained that the portion of the endless belt having the claimed temperature range is not clearly specified in the claims, and thus it can be said that the incidental heating from the molten metal (noted above) causes heating of the endless belt *at some position* along the endless belt to be within the claimed temperature range. Amended Claims 1 and 12 now specify that the claimed temperature range is provided “at a portion of the endless belt where the molten metal starts to come into contact with the endless belt.” This portion is shown in the specification, for example, as Position R2 in Figure 3. Applicants submit that this clarification avoids the interpretation explained in the personal interview. That is, the cited JP’084 reference does not disclose that a portion of the endless belt where the molten metal starts to come in contact with the endless belt is heated to a temperature of (melting point or liquidus-line temperature of the aluminum or aluminum alloy metal) x 0.35 as recited in Claims 1 and 12. This provides an additional basis for patentability of Claims 1 and 12 over JP’084.

The secondary references do not correct the deficiencies of JP ‘084. As discussed in the October 7, 2008 interview, the JP ‘271 reference relates to a dual roller apparatus, which is not applicable to the endless belt configuration recited in the claims. The JP ‘244 reference discloses a belt, but fails to teach heating (or heating device) as now recited in Claims 1 and 12.

For the reasons discussed above, independent Claims 1 and 12 patentably define over the cited references. Furthermore, since Claims 3, 9-11 and 14-18 depend directly or indirectly from Claim 1 or Claim 12, substantially the same arguments set forth above also

apply to these dependent claims. Hence, dependent Claims 3, 9-11 and 14-18 are believed to be allowable as well.

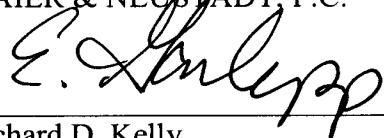
In addition, however, as discussed in the personal interview, Claim 9 has been amended to recite additional structure of the cast member. Specifically, the aluminum or aluminum alloy cast member comprises a final solidification portion having relatively larger crystallized substances that is located within a depth of .2 or less of the total thickness of the cast member. Further, dependent Claim 16 recites a cast member having a “V” shaped or “U” shaped removal region resulting from removal of the final solidification portion. None the cited references disclose a cast member having these structural features. Therefore, Claims 9 and 16 provide an additional basis for patentability over the cited references.

Still further, new Claims 14-15 relate to using a burner to direct heat on a surface of the endless belt not facing the molten metal, and providing the burner immediately before a position where the endless belt come in contact with the casting wheel. Claims 17 and 18 recite these features in apparatus claim format. As discussed in the October 7th interview, none of the cited references disclose this feature. Therefore, Claims 14-15 and 17-18 also provide an additional basis for patentability over the cited references.

In view of the amendments and discussions presented above, Applicants respectfully submit that the present application is in condition for allowance, and an early action favorable to that effect is earnestly solicited.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Richard D. Kelly
Attorney of Record
Registration No. 27,757

Edwin D. Garlepp
Registration No. 45,330

Customer Number

22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 08/07)
EDG/rac

Edwin D. Garlepp

Registration No. 45,330